

Draft New Network Report

JULY 2024



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National Transport Authority

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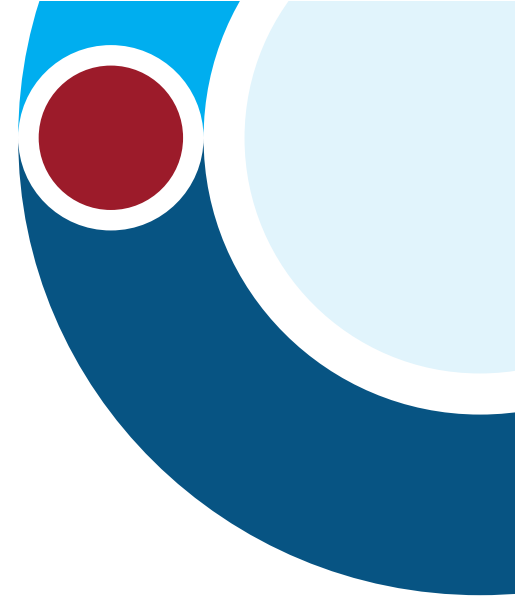
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1 Summary

What is BusConnects Waterford?

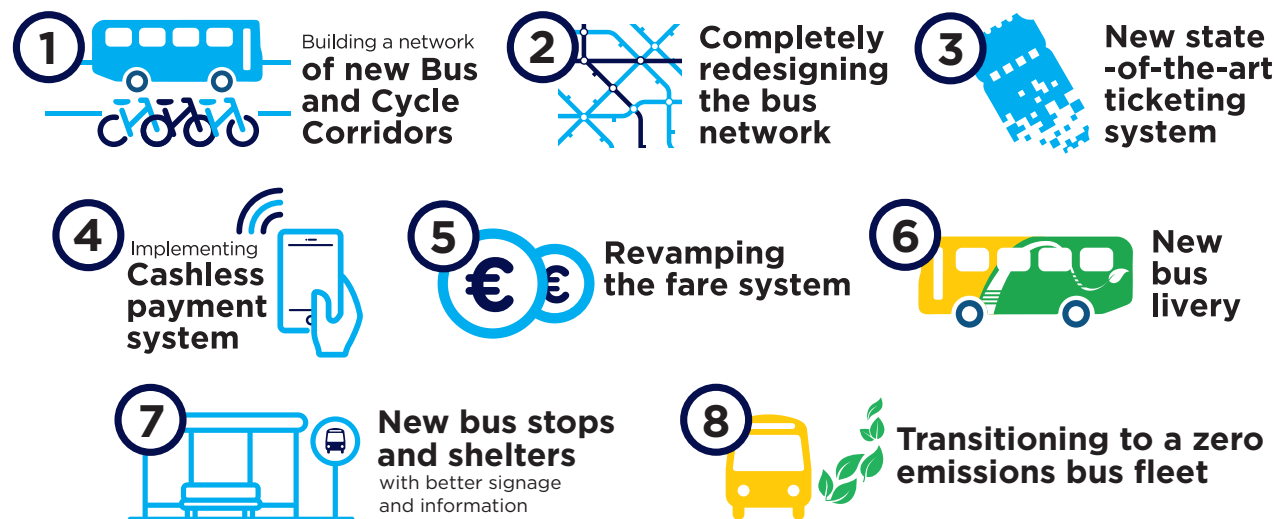
BusConnects is a programme of public transport investment in Ireland's major urban centres. It is developed and managed by the National Transport Authority (NTA), and funded by Project Ireland 2040.

BusConnects includes many elements:

- Redesigning the bus network
- Building new bus corridors and cycle lanes
- Implementing a state of the art ticketing system
- Implementing a cashless payment system
- Simpler fare structure
- New bus livery
- New bus stops and shelters
- Transitioning to a new zero emissions bus fleet

BusConnects Waterford will help realise these local and Government strategies and plans:

- Waterford Metropolitan Area Transport Strategy (WMATS)
- Regional Spatial and Economic Strategy for the Southern Region
- Waterford City and County Development Plan 2022-2028



This redesign of the Waterford bus network is one of the eight strategies that make up the BusConnects programme.

- National Development Plan 2021-2030
- National Sustainable Mobility Policy
- Climate Action Plan 2023

As foreseen in the WMATS, BusConnects Waterford will deliver approximately 63 kms of bus lanes and bus priority measures alongside new cycling routes and greenways. The new bus network will incorporate the relocation of Plunkett Station to a new site in the North Quays, and the availability pedestrian and cycling connections over the new active-travel

bridge. Finally, BusConnects will increase the quantity and quality of bus service, as planned in WMATS, and will deploy 75 new zero-emission buses.

What is the Network Redesign?

The Waterford bus network has evolved with the growth of the city. Recent improvements to bus frequencies, weekend service levels and reliability have improved the usefulness of public transport in the city.

The Waterford Metropolitan Area is expected to grow 50% more populous by the year 2040. In order to accommodate this growth whilst maintaining a high quality of life, a step-change in the level of use of public transport will be needed. There is an urgent need to build on recent success in Waterford by restructuring the Waterford bus network and making greater investments in useful, reliable bus service.

This network redesign is one step in that process of restructuring and reinvestment. It is a collaboration among:

- National Transport Authority
- Waterford City and County Council
- Kilkenny County Council
- Bus Éireann

This network redesign is focused on the Public Service Obligation (PSO) network, for which Bus Éireann is the

contracted operator.

The bus network redesign is a review of where and how often the bus should come. This includes which roads buses run on, times and days of service, frequencies, stop locations, and how people will interchange between routes.

The network is being reinvented from a blank slate, rather than adjusted from the current network. There is no assumption that inherited patterns of bus service must be maintained for the sake of tradition or to avoid change.

Redesign Process

This report forms the basis for public consultation on the Draft New Network and the gathering of public feedback. Public consultation begins on 10 June 2024 and is expected to continue for six weeks after.

This report includes:

- An assessment of existing demand and need for public transport.
- Key principles and choices in redesigning the bus network.
- The Draft New Network for public consideration.

Since every detail of the existing network is something somebody relies on, NTA expects a broad range of positive and negative comments. Any large change to a bus network will result in inconvenience for some people, even if it benefits most people.

Once the planning team has understood the feedback on the Draft, a Final New Network will be designed. Implementation of route changes consistent with the Final New Network are planned to begin in 2026.

Routes Under Review

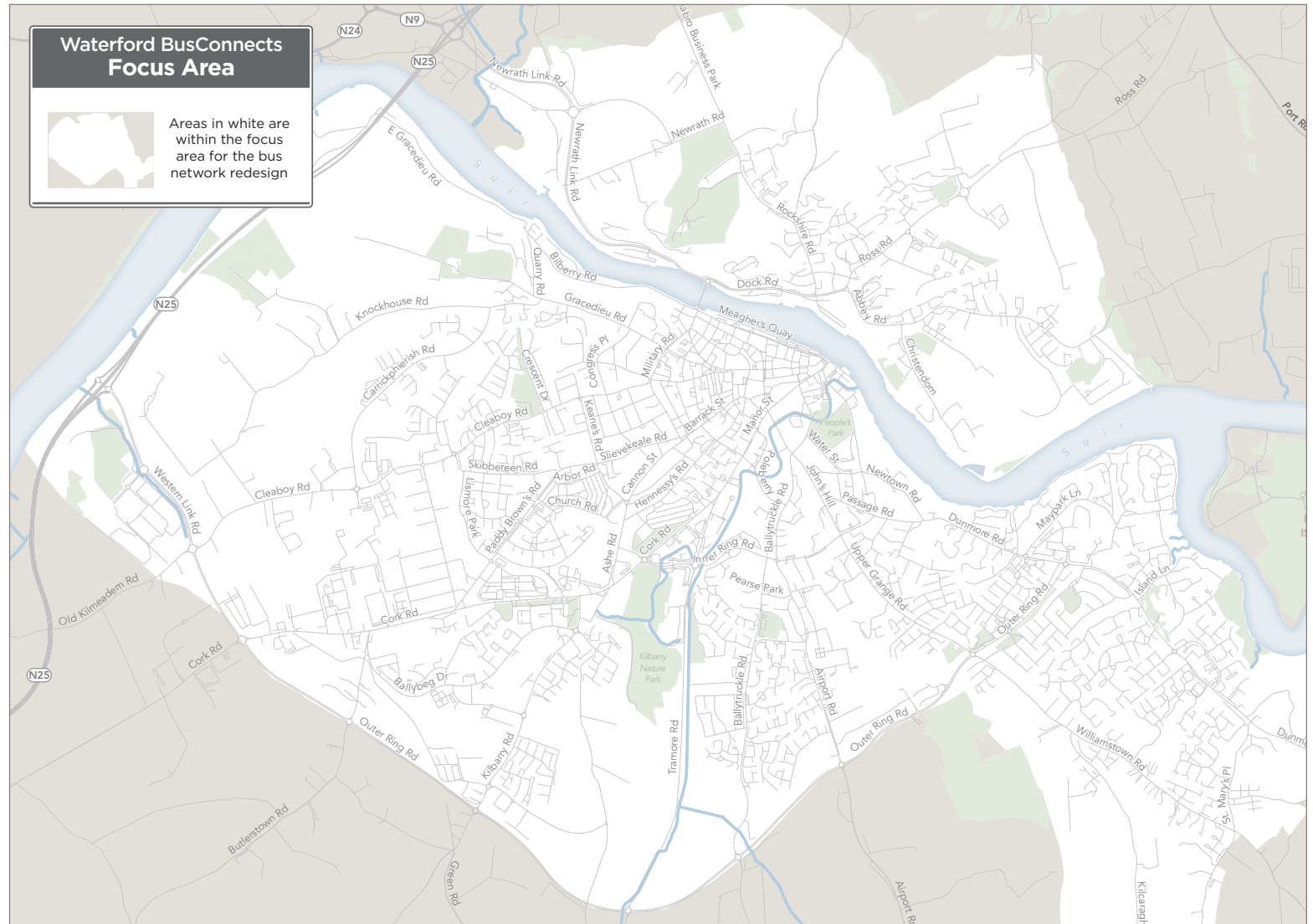
This network redesign focuses on the urban portions of Counties Waterford & Kilkenny (as shown on the next page). It is focused on these PSO routes:

- W1: Clock Tower - SETU - Merchants' Quay
- W2: Clock Tower - SETU - Meagher's Quay
- W3: Clock Tower - St. John's Park - Meagher's Quay
- W4: Peter Street - Carrickphierish - Browns Road
- W5: Oakwood - Waterford Hospital

Focus Area

The area of focus for this network redesign is the urban portion of the City & County of Waterford, plus the urban areas north of the river in County Kilkenny.

Additional developed areas nearby may also be served by urban services. However, services among smaller towns in the City & County of Waterford and County Kilkenny are addressed by the Connecting Ireland Rural Mobility Plan, a national initiative to improve public transport outside and between major cities and towns.



How to Read the Network Maps

New Route Numbers

All of the proposed routes have been given new numbers, without the “W” prefix, to differentiate them from existing routes.

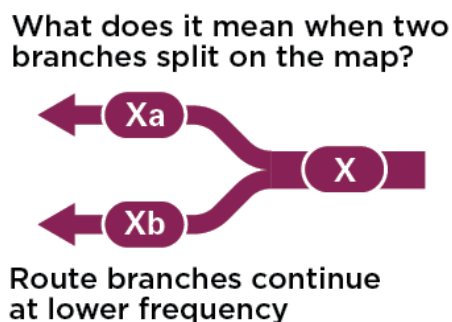
The numbers proposed are not final, and may change before the Final New Network is put in place.

Line Width Shows Frequency

In the maps on the next two pages **the thickness of the lines represent the route frequency.** Thicker lines are routes coming every 15 minutes, Monday through Sunday, whilst thinner lines are routes coming every 30 minutes.

Route Branching

Some routes in the Draft New Network would branch, shown on the maps with this diagram:



These are not interchanges. The buses on the less frequent “branches” run together to form the more frequent “trunk.”

This is proposed for:

- Route 3 at Pearse Park
- Route 4 in Ferrybank and at the Outer Ring Road
- Route 5 at Ballybeg

Route 1 is proposed to have a similar structure, but with only one branch. A high frequency of service would go as far as Waterford Hospital (and the Woodlands Hotel during rush hours) whilst a lower frequency of

service continues on to Dunmore and Williamstown and circling back to Ardkeen. Essentially, every second bus would continue past the hospital.

No interchange is necessary between the two segments of the route, but the inner segment would offer shorter waits for a bus than the outer segment.

Route Descriptions

Street-by-street descriptions of each proposed route are provided starting on [page 80](#).

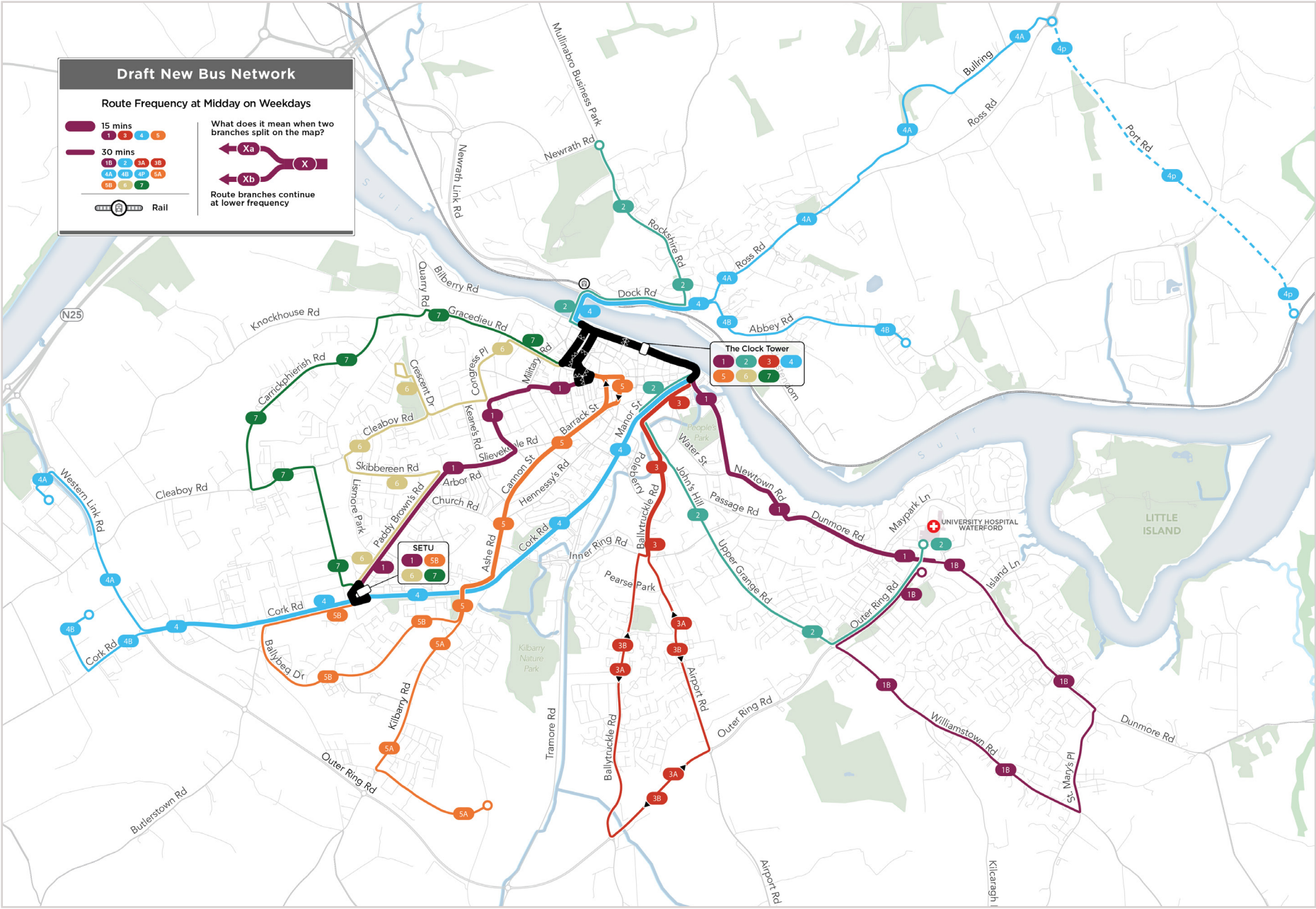
Text descriptions of proposed frequencies are given in the appendix starting on [page 103](#).

Other Services

There are more publicly-supported regional bus services in the Waterford area than are shown on the maps in this report.

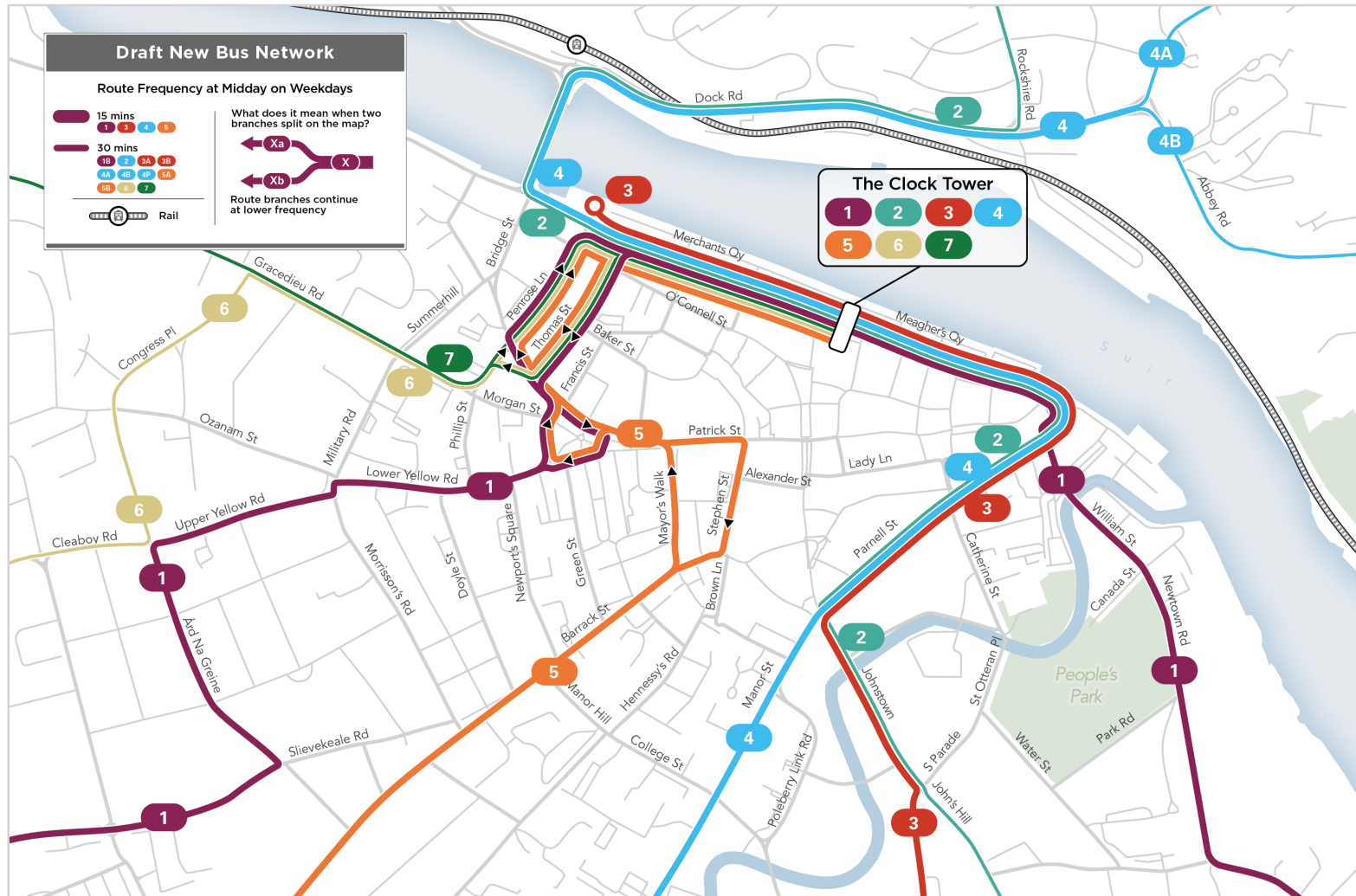
BusConnects is focused on the urban Waterford area, whilst planning for connections among cities, towns and rural areas is happening through the Connecting Ireland Rural Mobility Plan.

Maps of the Draft New PSO Network



For a closer look at the Draft New Network, please visit busconnects.ie and the online map linked there.

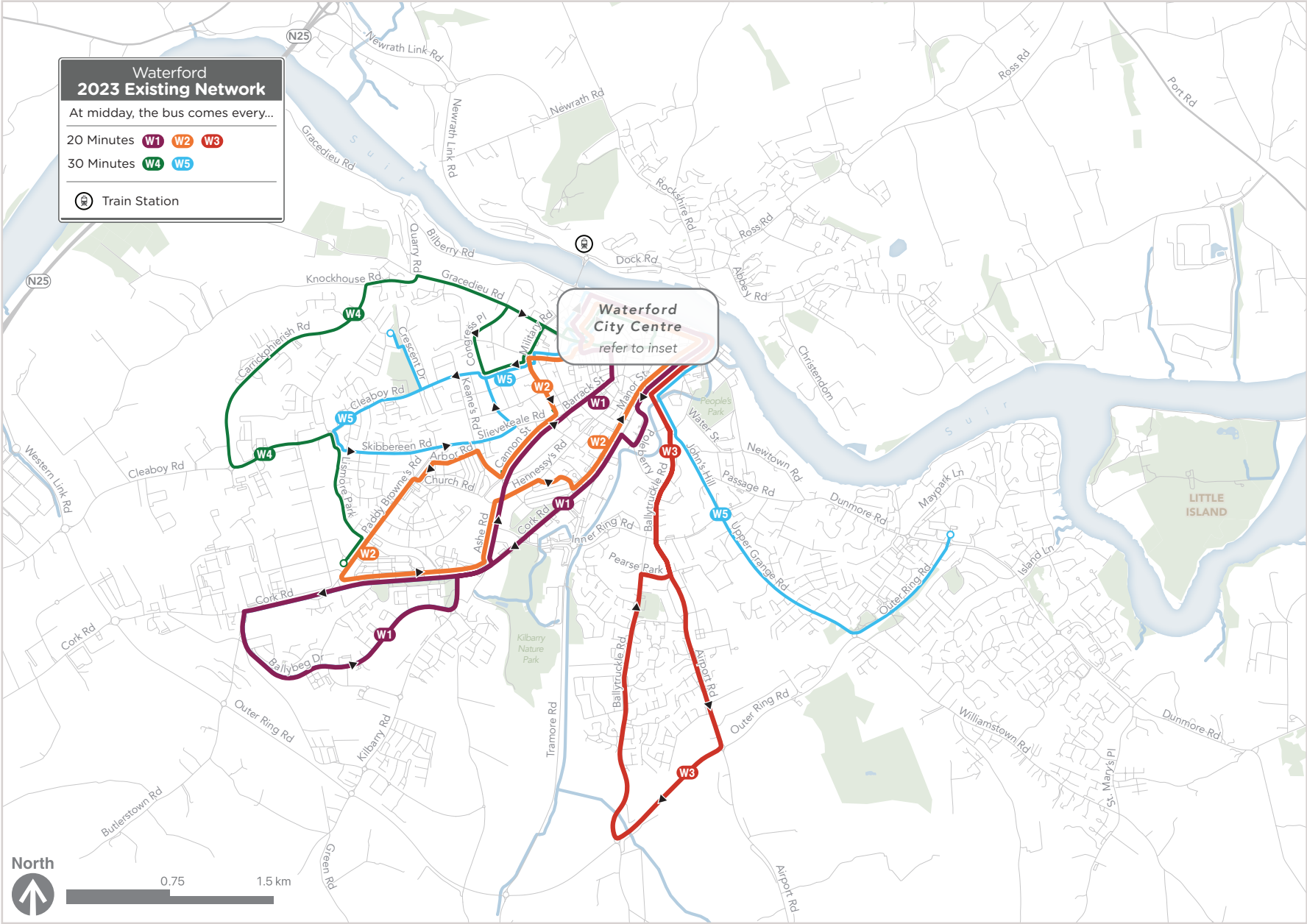
City Centre



For a closer look at the city centre in the Draft New Network, please visit busconnects.ie and the online map there.

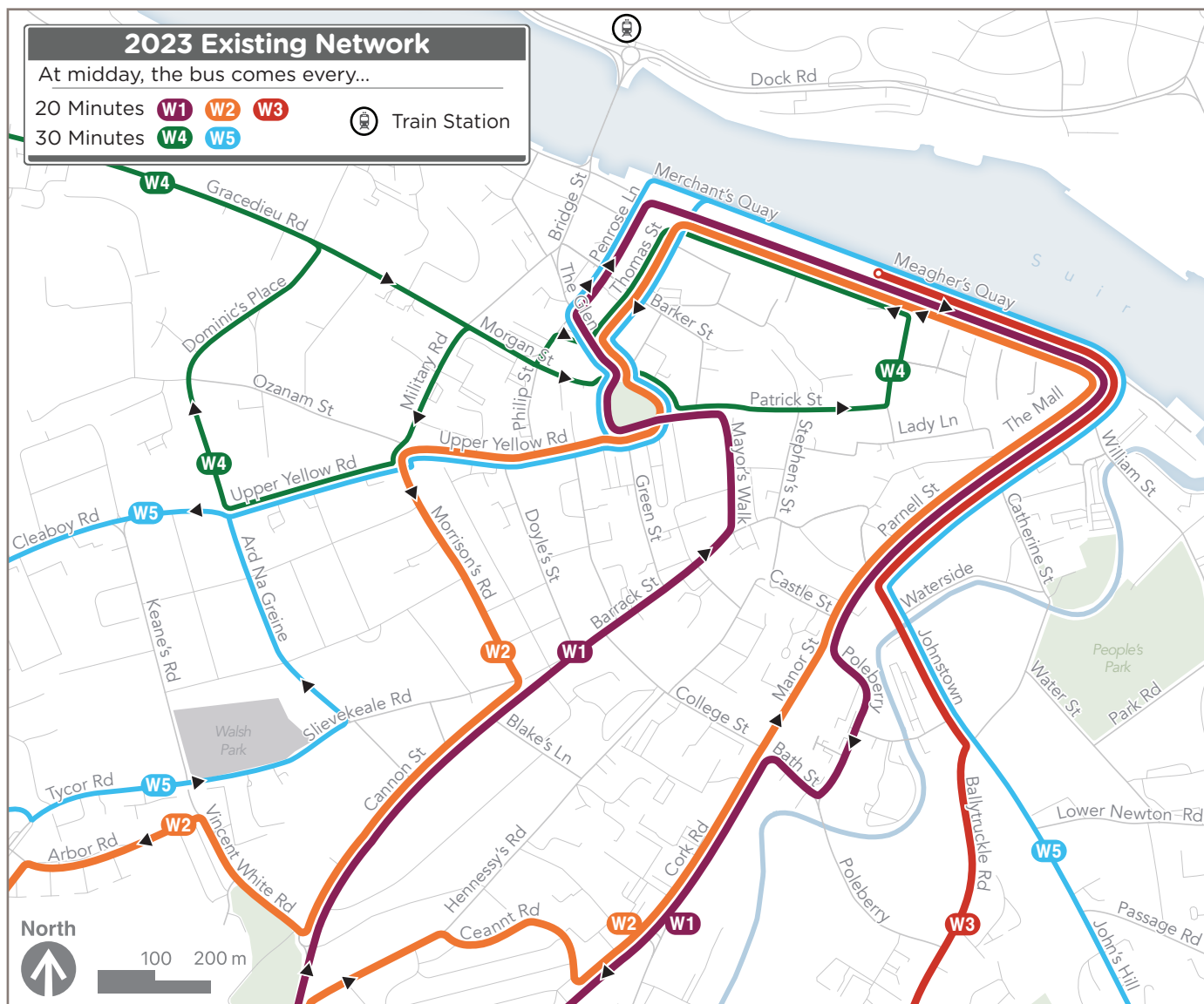
Maps of the 2023 Existing Network

PSO Services



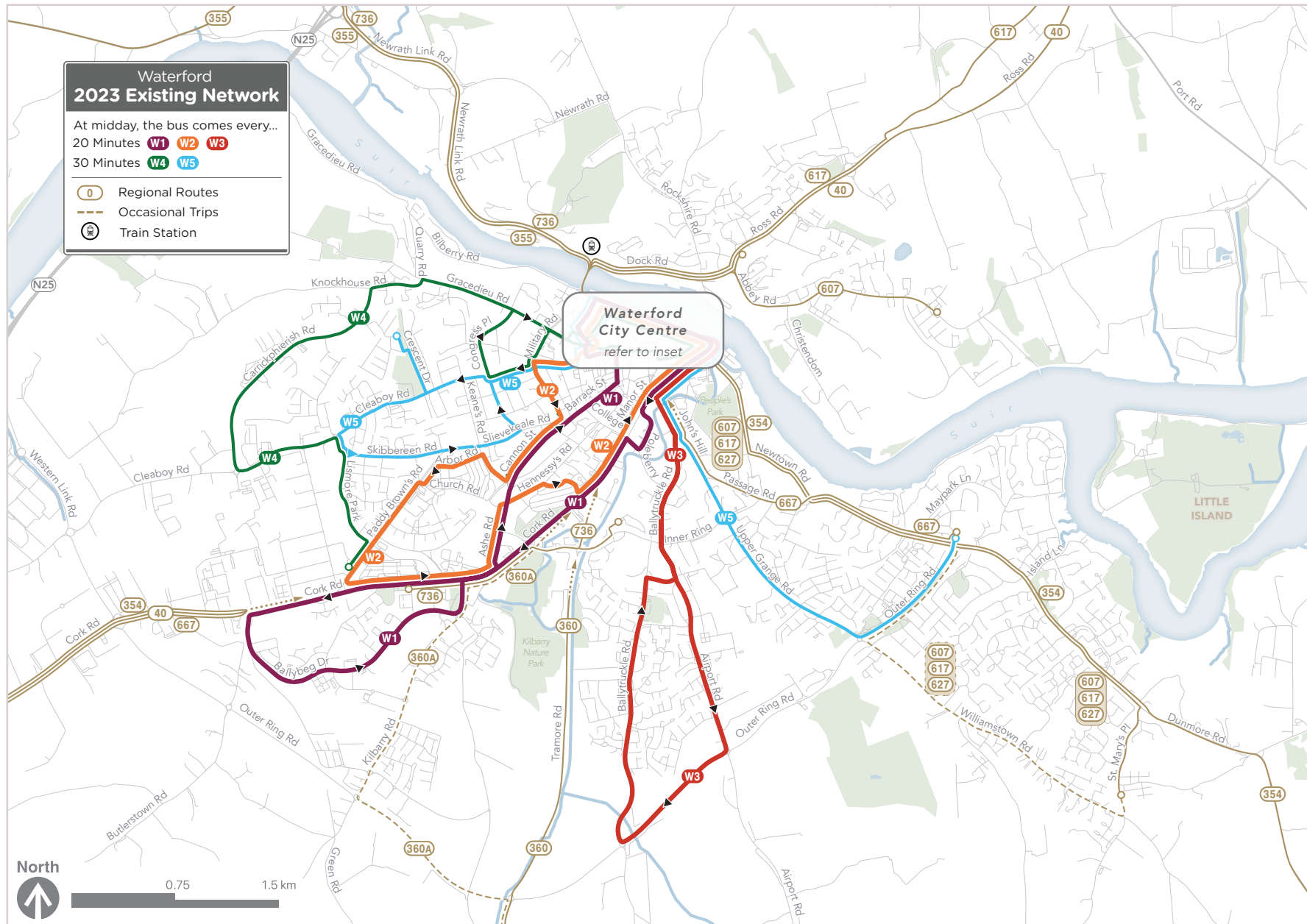
This map shows the existing urban PSO routes in the focus area as of autumn 2023.

PSO Services in the City Centre



This map shows the existing urban PSO routes in Waterford city centre as of autumn 2023.

All Services



This map shows all routes (PSO, Expressway, commercial, etc.) that offered day-long service in the focus area as of autumn 2023.

More Service Investment

Added Service

The existing PSO bus network does not adequately address local or national goals for growth, quality of life and sustainability. The NTA is proposing a major increase in service through BusConnects Waterford.

This proposal would *more than double* the amount of service in the Waterford Public Service Obligation (PSO) bus network. This increase includes some service that can be seen on a map – such as new route segments – and some service that appears in timetables:

- New routes covering new areas.
- Better frequencies where the most people are travelling.
- Earlier morning starts on all routes.
- Higher frequencies on Sundays, and for more hours of each day.
- Two-way service in areas that are today served in one direction only.

Patronage vs. Coverage

One of public transport's main goals is high patronage. High patronage is necessary to meet climate, growth and liveability goals. High patronage generally results when places with many people are connected by frequent, fast and linear service.

But patronage is not public transport's *only* goal. Public transport is also expected to provide some service to all urbanised areas, even where few people live or work, and even where patronage is low. The purpose of such service is to prevent isolation and support people's needs for mobility no matter where they live.

These two goals are in tension. The more service is focused into frequent, all-day routes, in the areas where the large numbers of people live and work, the less it can be spread out to cover all areas.

Not all of the routes proposed in the Draft New Network are expected to attract high patronage. Some of them serve the purpose of covering areas where patronage will likely be low, but the service is important nonetheless.

What is the value of high patronage?

- Make service more useful for more people
- Support dense and walkable development
- Improve access to jobs, education and other opportunities for large numbers of people
- Encourage people to switch from car to public transport
- Combat traffic congestion
- Reduce carbon emissions

What is the value of coverage?

- Promote social and economic inclusion, regardless of where people live
- Prevent isolation for people who live in less-populated areas
- Include everyone in the benefits of public transport

Higher Frequencies

The Draft New Network would improve the frequencies offered across the city as well as the hours of service.

The graphic below uses colour to describe each route's proposed frequency by time and day. Text tables with the same information, for the Existing and Draft New Networks, are provided in the appendix starting on [page 103](#).

15-Minute Frequency

In the existing network, three routes offer 20-minute frequency. In the Draft New Network, **four routes** are proposed to offer **15-minute frequency** all-day, and these routes

cover much more of the busiest parts of the city. An additional two routes would offer 15-minute frequency during weekday rush hours.

Routes with frequencies of 15 minutes or better not only shorten waiting time, they also make it easier for people to interchange and thereby access more of the city.

four routes have buses every 15 minutes all weekend.

Earlier Morning Service

In addition to frequency improvements, some routes would offer a longer span of daily service by starting earlier in the morning, especially on Saturdays and Sundays.

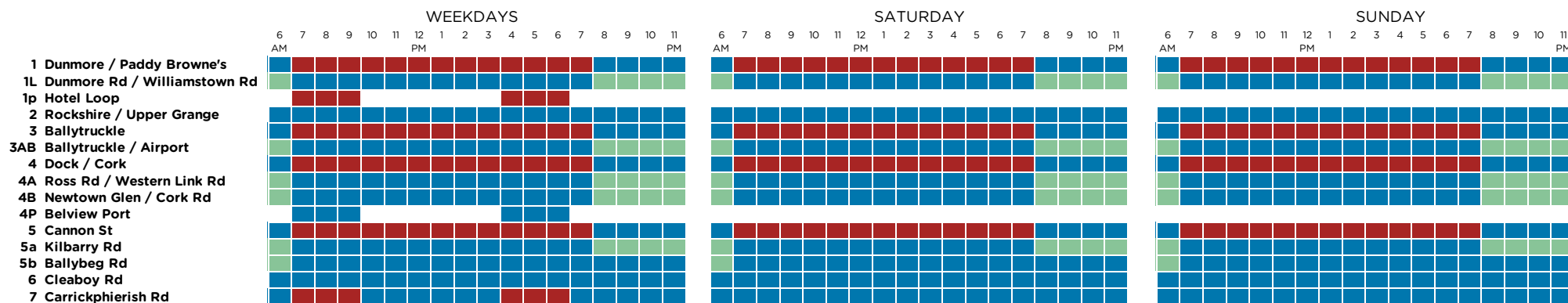
Every-day Frequency

In the existing network, frequency is worse on Sundays than on other days of the week. In the Draft New Network, the daytime weekday frequencies are also proposed to be the Saturday and Sunday frequencies - which means

Waterford Draft New Network: Frequencies and Spans of Service

The bus comes about every:

■ 15 minutes ■ 30 minutes ■ 60 minutes

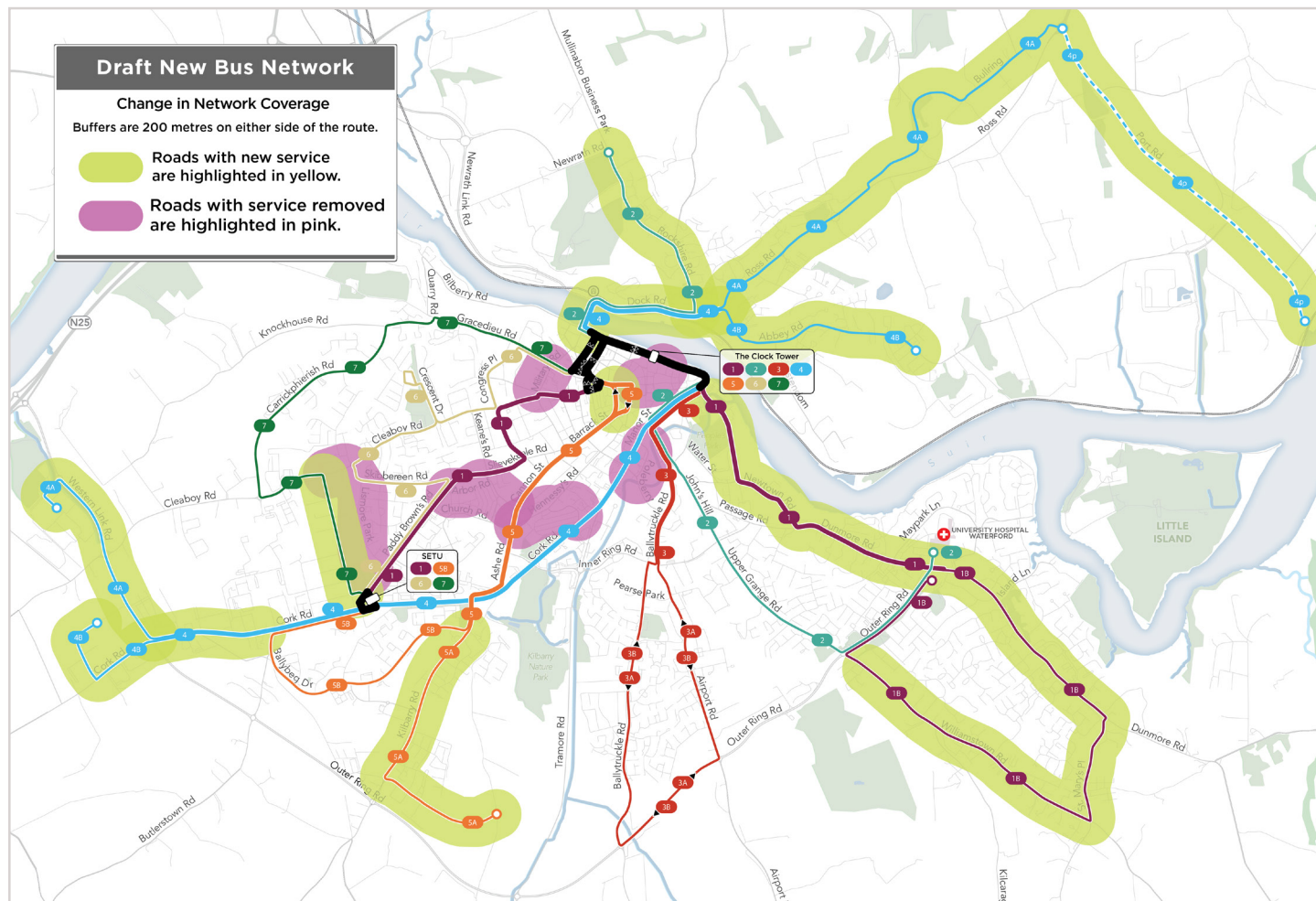


Service to More Areas

The Draft New Network would provide PSO service in certain areas which are not served today. They are marked in yellow on the map below.

The Draft New Network would also remove service on a few streets, which are marked in pink on the map below. In these cases, the total number of people affected would be small, and improved service would be provided within a short walk of all existing bus stops. Removing these few, small segments has a benefit to a large number of people as it allows bus routes to be more linear and direct and the network to be simpler.

Overall the share of residents within 400 metres of a bus stop (about a five minute walk) would increase from 67% to 73% (measuring on weekdays at midday). Across every demographic group measured the proportion near service would increase with the Draft New Network. The percentage of jobs and school enrolments near bus service would also increase.



More Access to Opportunity

It's impossible to predict exactly how many people might use an improved bus network. The future is inherently unpredictable, as our recent experience with the Covid-19 pandemic demonstrated. Predictive models can be used to forecast future public transport patronage, to use them we must make myriad assumptions about the future at least some of which will turn out to be wrong.

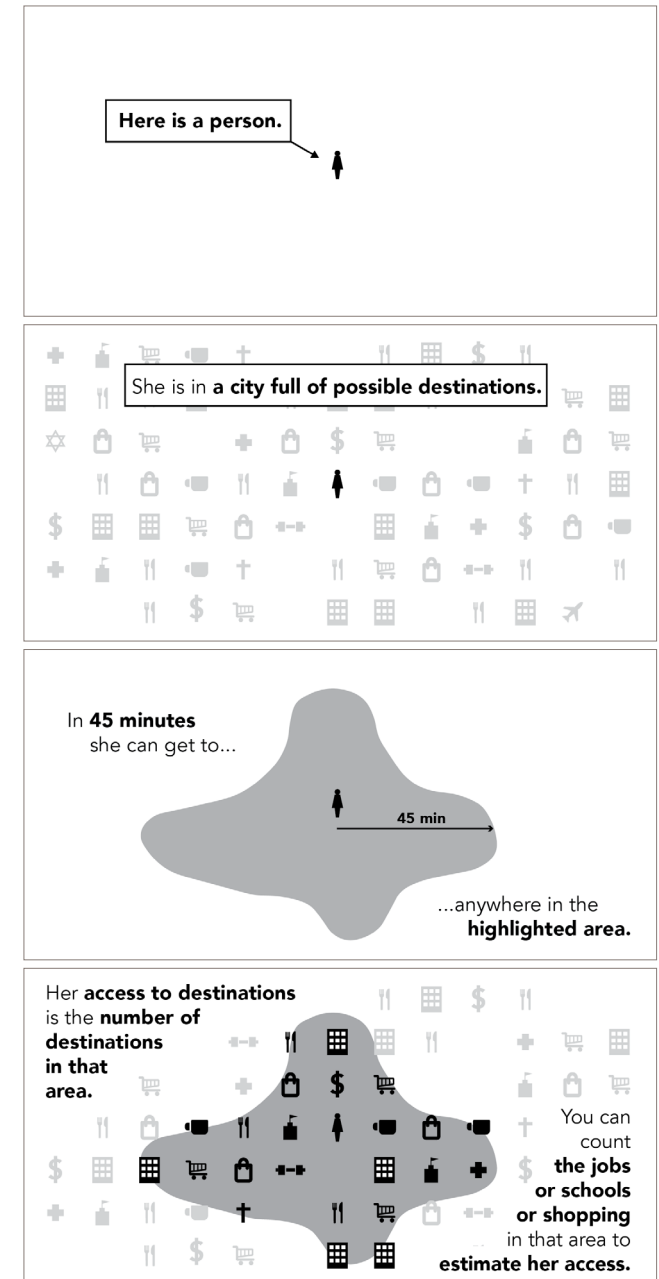
At the individual level, it is also hard to predict public transport patronage. It is difficult to know how someone will make their travel decisions in the future if there are changes in where they live, where they work, fuel prices, traffic congestion, the quality of public transport service, improvements to cycling and walking facilities, their own ability to drive a car, etc.

In the face of so much uncertainty, we can rely on simpler measures that focus on the near-term consequences of a change, and that require fewer assumptions about the future. One such measure is "access," also sometimes called "accessibility." Access measures the usefulness of a public transport network for any person who has a limited amount of time to spend traveling.

Public transport is useful to the extent that it allows people to go where they want in a reasonable amount of time. **The more destinations you can reach in a reasonable amount of time, the greater your access to opportunity.**

When we measure access, as illustrated at right, we use Census data representing where people live and work. We then use arithmetic to sum travel times between all residents and jobs. This arithmetic is described on the next page.

Designing cities and their public transport networks so that more people have access to more opportunities, within a reasonable journey time, is a reliable way to increase patronage.



What Factors Affect Access to Opportunity?

Access to opportunity via public transport is affected by:

- **How many destinations are near public transport**
- **How long a person has to walk** to and from service
- **How long they have to wait** for the service
- **How far they have to travel** in the public transport vehicle
- The **speed** of the vehicle
- **How long they have to wait to interchange** between services

Public transport operators have control over some of these factors: waiting time, interchange, route directness, where service is provided.

They have less or no control over other factors that affect access: public transport speed, travel distances, or where jobs and housing are located. These factors are generally controlled by local authorities as they manage land use, development and roadways.

Estimating Journey Times

Often when people describe public transport journey time they focus on the time spent on the bus. Public transport journeys also include time spent walking and waiting, which can exceed the time spent on the vehicle itself.



Walking to and from the stop

Most public transport journeys begin and end with a walk.



Waiting for the next bus

Waiting doesn't only happen at the start of your journey, it can also happen at the end. You may leave home shortly before your bus departs, but if your bus comes infrequently you often have to arrive at your destination early to avoid being late.

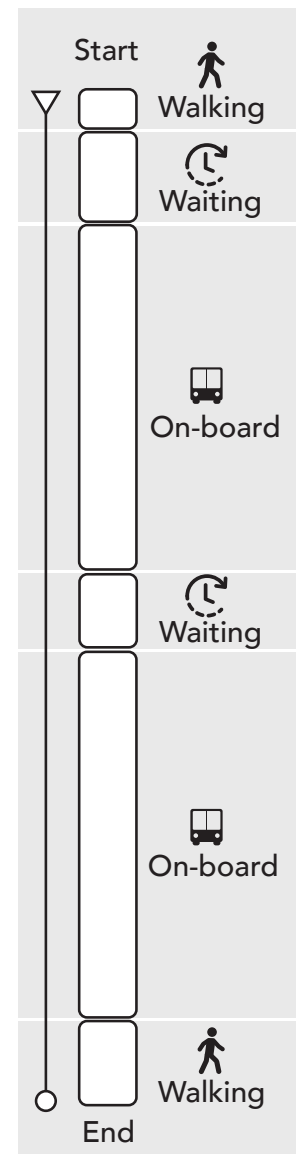
If you're interchanging, you'll have to wait a second time.

On average, across all passengers, the minutes spent waiting will sum to approximately one-half of the frequencies of the routes in question.



On-board the vehicle

Time spent on-board is affected by distance and speed. In summing travel times on the Draft New Network, we used conservative (slow) assumptions, and did not take into account the faster speeds that may result from other BusConnects improvements. Improvements in speeds will result in greater job access for more people.



Increased Access to Jobs and Education

As described on [page 15](#), the Draft New Network would increase the percentage of residents, jobs and school enrolments near bus service. However, simply being near service isn't enough to make a service *useful*.

To measure the usefulness of the Draft New Network, we measure access to destinations *within a reasonable amount of time*. We have analysed this for:

- Door-to-door journeys of 30- or 45-minutes or less.
- Rush hours and midday.
- Weekdays, Saturdays and Sundays.
- To jobs and to education (primary, secondary, and third-level).
- For all residents, and for residents of areas of social deprivation; unemployed residents, young and senior¹ residents.

¹ Access to jobs for senior residents was measured not because seniors are likely to hold a job, but because job locations often represent areas with shops, services and social opportunities. Access for seniors would improve on all days, and especially on Sundays.

The tables at on the following page report the median² increase in access that would be provided, for all residents and by demographic group, within 30- and 45-minutes of travel, and to either jobs or education.

The Draft New Network would increase residents' access to jobs by +36% on weekdays all day, and +47% on weekdays at rush-hours, within 30 minutes of travel.

On Sundays, the increases are particularly large: +67% more jobs would be accessible within 30 minutes.

Access to jobs within 45 minutes of travel would improve for all groups, though generally by a smaller degree than access within 30 minutes would improve. Whilst 45 minutes sounds like a long commute time for a small city like Waterford, it is necessary for some cross-city journeys once one accounts for all walking and waiting time, and

² "Median" is similar to "average" but it represents the point in the middle of the range of all experiences, rather than being a numerical average of all experiences. *Median* is a better representation of the most common experience Waterford residents would have with the Draft New Network than is *average*.

when one considers residents of more distant areas such as Tramore (who were included in this measure).

To measure access to education, we measured travel times from residents to primary schools, secondary schools, colleges and universities, with the number of enrolments available at each building accounted for. Access to educational enrolments would improve for all residents and specifically for youths.

Maps showing changes in access within 30 or 45 minute journeys, for any specific location in Waterford, can be made using the interactive webmap linked from busconnects.ie.

Many places people visit (such as shopping, schools, restaurants, medical services) are also places of work, so access to a greater number of jobs goes along with access to important destinations.

Changes in Access to Jobs within 30 Minutes

Waterford-area residents, by demographic	Weekday midday increase in jobs reachable within 30 minutes of travel	Weekday rush-hours increase in jobs reachable within 30 minutes of travel	Saturday increase in jobs reachable within 30 minutes of travel	Sunday increase in jobs reachable within 30 minutes of travel
All	+36%	+47%	+30%	+67%
Residents in Disadvantaged Areas	+12%	+15%	+13%	+37%
Unemployed Residents	+23%	+40%	+15%	+69%
Young Residents	+41%	+46%	+36%	+56%
Senior Residents	+15%	+17%	+17%	+35%

Changes in Access to Jobs within 45 Minutes

Waterford-area residents, by demographic	Weekday midday increase in jobs reachable within 45 minutes of travel	Weekday rush-hours increase in jobs reachable within 45 minutes of travel	Saturday increase in jobs reachable within 45 minutes of travel	Sunday increase in jobs reachable within 45 minutes of travel
All	+18%	+19%	+23%	+28%
Residents in Disadvantaged Areas	+19%	+12%	+20%	+4%
Unemployed Residents	+15%	+15%	+22%	+32%
Young Residents	+21%	+16%	+23%	+11%
Senior Residents	+20%	+15%	+24%	+18%

Changes in Access to Education with 30 or 45 Minutes

Waterford-area residents, by demographic	Weekday midday increase in education reachable within 30 minutes of travel	Weekday rush-hours increase in education reachable within 30 minutes of travel
All	+19%	+19%
Young Residents	+15%	+17%

Waterford-area residents, by demographic	Weekday midday increase in education reachable within 45 minutes of travel	Weekday rush-hours increase in education reachable within 45 minutes of travel
All	+6%	+19%
Young Residents	+18%	+20%

How to Learn About the Draft New Network

In this Report

This Report is one source of information about the Draft New Network. Within this Report you will find:

- The principles used in bus network design, starting on [page 21](#).
- An overview of the existing Public Service Obligation (PSO) bus network, starting on [page 33](#).
- An overview of the demographic and built environment factors in Waterford, which affect public transport, starting on [page 45](#).
- A description of the Draft New Network, starting on [page 73](#).
- Analysis of how residents' access to service and to destinations would change with the Draft New Network, starting on [page 85](#).

All routes in the Draft New Network have new numbers!

Online Map

To explore what the Draft New Network would mean for your area and for your journeys, you can refer to the online webmap available at the [BusConnects Waterford website](#).

The online map allows you to:

- Zoom in and see detailed routing.
- Look at areas that are difficult to show on these small pages.
- See how average access to jobs or residents would change from your area.
- Create your own access map comparing how far you could travel using the existing network or the Draft New Network.

Give Your Feedback

The planning team hopes that you will give your feedback on the proposed new routes and network.

The [project website](#) offers more resources, such as the online map and videos explaining the new network.

An online feedback form is also linked from the project website, from 10 June through 19 July of 2024. You are invited to submit feedback using that form, and you may also upload letters or other files using the form.

For queries about public consultation, contact the planning team at waterfordnetwork@busconnects.ie.

Give us your feedback through the project website: busconnects.ie